November 1920. ENTOMOLOGICAL SERIES. VOL. VI, No. 7.

MEMOIRS OF THE DEPARTMENT OF AGRICULTURE IN INDIA

LIFE-HISTORIES OF INDIAN INSECTS MICROLEPIDOPTERA

VII. EPERMENIADÆ, PLUTELLIDÆ AND LYONETIADÆ

BY

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Imperial Entomologist

AGRICULTURAL RESEARCH INSTITUTE, PUSA

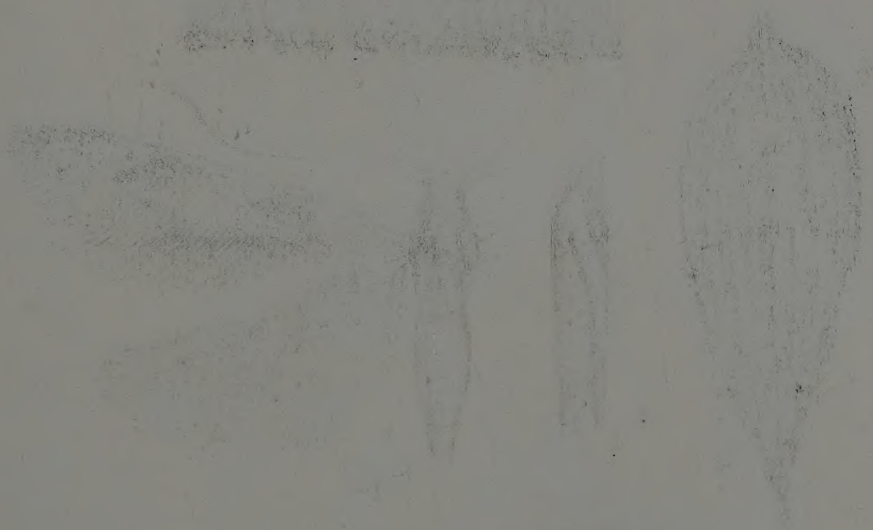
PRINTED AND PUBLISHED FOR

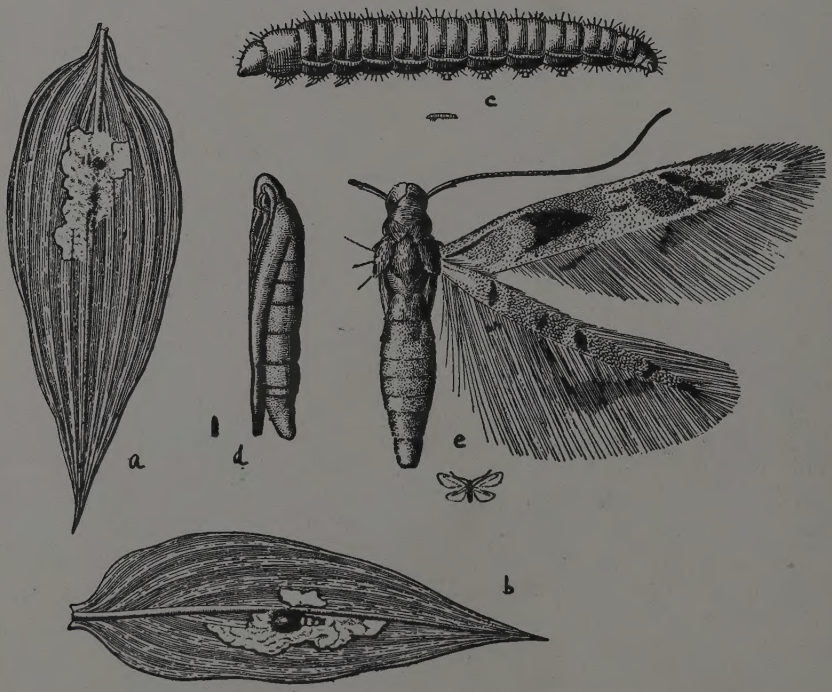
THE IMPERIAL DEPARTMENT OF AGRICULTURE IN INDIA

BY

THACKER, SPINK & CO., CALCUTTA

W. THACKER & CO., 2, CREED LANE, LONDON





Idioglossa triacma:—*a*, Leaf of *Commelina bengalensis* showing larval mine ; *b*, leaf of *Commelina bengalensis* showing tunnel through which larva moves from one side of the leaf to the other ; *c*, larva, natural size and magnified (x 13) ; *d*, pupa, natural size and magnified (x 13) ; *e*, moth, natural size and magnified (x 13).

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VII. EPERMENIADÆ, PLUTELLIDÆ AND LYONETIADÆ.

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[Received for publication on 29th June 1919.]

EPERMENIADÆ

EPIMARPTIS PHILOCOMA, MEYR.

Epimarptis philocoma, Meyr., B. J., XXII, 776 (1914)(1), Exot. Micr., II, 69 (1917)(2).

Described from Karwar, North Kanara, from a single specimen reared in September(1). Since recorded from the Khasi Hills(2).

"Larva reddish (including head); lives in a white web on midrib of an unknown plant, the web being on both sides of the leaf, kept off the surface by little pillars of excrement; the webs on either surface of the leaf are connected by holes through the leaf itself, and the larva uses these alternative abodes as a means of escaping observation, dodging through the holes with much agility; cocoon separate, close to midrib, oval, resembling a bird-dropping"(1).

IDIOGLOSSA TRIACMA, MEYR. (PLATE XLVI.)

Idioglossa triacma, Meyr., Exot. Micr., I, 77-78 (1913)(1).

Originally described from the Khasi Hills, this species has been reared at Pusa from larvæ found on 14th November 1916 nibbling leaves of *Commelina bengalensis* (Commelinaceæ). The larva forms a tunnel across the midrib of the leaf and through this tunnel it has access to both halves of the blade of the leaf. It feeds on one epidermis and tissue of the leaf, leaving the other epidermis entire and, over the part it feeds on, it spins a white silken webbing,

so that it can live and feed hidden under this webbing. (Figs. *a*, *b*.) The larva is about 4 mm. long and about 0·75 mm. broad, cylindrical, creamy white; head yellow, shiny, somewhat retractile into prothorax; prothorax with an indistinctly chitinized integument; prologs minute, five pairs present. The moths emerged between 24th November 1916 and 15th February 1917.

AMPHITHERIDÆ.

This family has been established by Mr. Meyrick (*Exotic Micr.*, I, 154; Dec. 1913), to contain a small group of species developed from the *Plutellidæ*. The only Indian genera are *Agriothera* and *Telethera*, whose early stages are unknown.

PLUTELLIDÆ.

ACROLEPIA MANGANEUTIS, MEYR. (PLATE XLVII, FIG. 1.)

Acrolepia manganeutis, Meyr., Exot. Micr., I, 149(1913)(1); Fletcher, Entl. Note 90, f. 17 (1916)(2), Proc. Second Entl. Meeting, p. 297 (1917)(3).

Described from Calcutta, the Khasi Hills, and Ceylon (Maskeliya)(1). Also from Ootacamund(2).

Larva on stored yams (*Dioscorea*) in Calcutta(1, 2). Pupa in net-work cocoon.

PLUTELLA MACULIPENNIS, CURT.

Cerostoma maculipennis, Curtis, Brit. Entom., IX, t. 420, expl., p. 2 (1832)(1).

Plutella cruciferarum, Zeller, Stett. Ent. Zeit., IV, 281-283 (1843)(2); Quanjer, Tijds. voor Ent., 1906, pp. 11-17, t. 1-2(3).

Plutella maculipennis, Wlsm., Fauna Hawaii, I, 652-653 (1907)(4); Lefroy, Ind. Ins. Pests, p. 152, ff. 170-171(5), Ent. Mem. Agri. Dept. India, I, 225, f. 69(6), Ind. Ins. Life, p. 538, f. 345(7); Meyrick, Rec. Ind. Mus., V, 229(8), Catal. Plutell, p. 59 (1914)(9); Fletcher, S. Ind. Ins., p. 464, f. 340 (1914)(10), Proc. Second Entl. Meeting, pp, 276, 277, 280, 282, 283 (1917)(11).

This cosmopolitan species occurs throughout the world everywhere that man plants cabbages. It is abundant throughout our limits.

The eggs are laid singly on leaves. The full-grown caterpillar is about 8 mm. long, moderately stout, attenuated at each extremity, smooth, with short scattered bristly hairs; in colour pale-green with a pale-brown head and prothoracic shield. Pupa in a slight silken cocoon of open net-like texture; pupal period about ten days. On cabbage, cauliflower, radish, mustard and other cruciferous plants, the larva eating holes in the leaf(10).

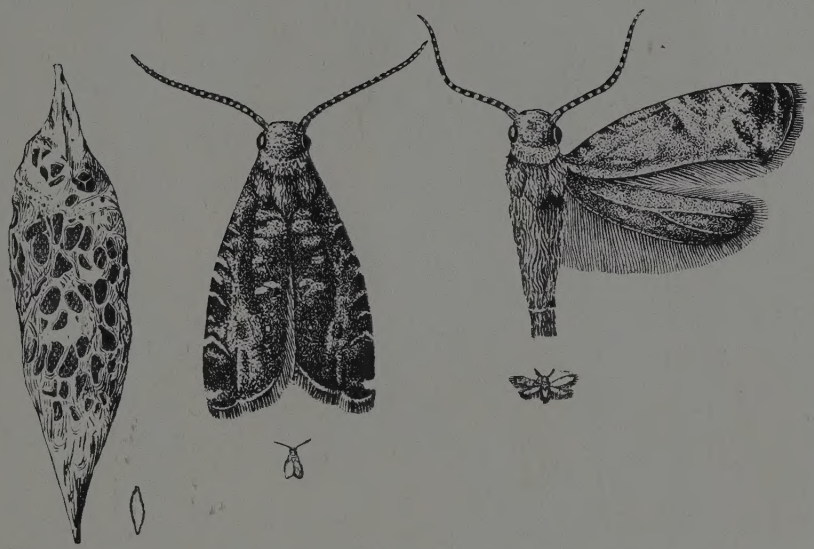


Fig. 1. *Acrolepia manganeutis*:—(The outline figures show the natural sizes.)

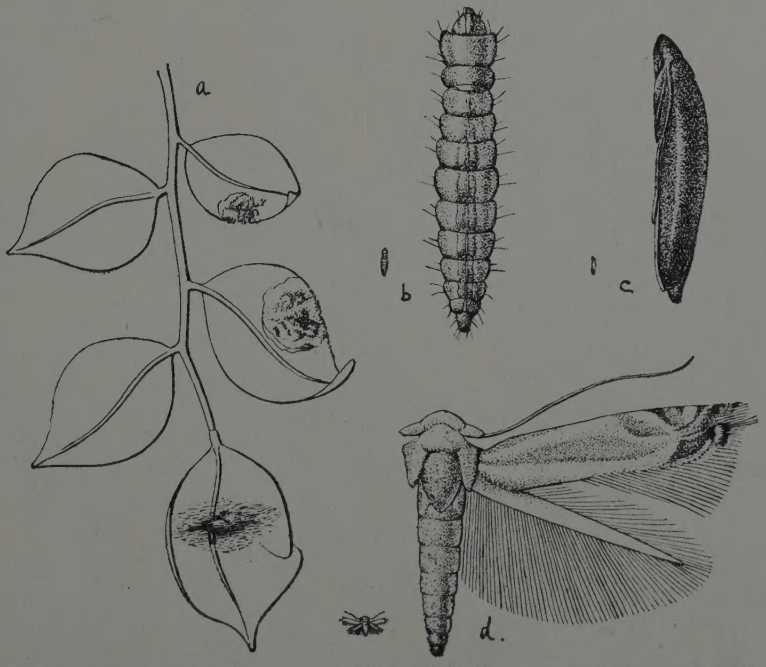


Fig. 2. *Leucoptera sphenograpta*:—*a*, Twig of *Dalbergia sissu* showing larval mines in leaves and cocoon on terminal leaf ; *b*, larva ; *c*, pupa ; *d*, moth, natural size and magnified (x 13).

PHYLLOCNISTIS CITRELLA.

EXPLANATION OF PLATE XLVIII.

PHYLLOCNISTIS CITRELLA.

Fig. 1. Twig of *Citrus* with leaves mined by larvæ, natural size.

„ 2. Leaf of *Citrus*, mined by larvæ. On right-hand side the larva is seen in the mine. On left-hand side, near tip of leaf, the edge is bent over to form a cocoon for pupation of the larva which has quitted the mine (natural size).

„ 3. Larva, natural size and magnified (× 17).

„ 4. Pupa, natural size and magnified (× 17), from side. A dorsal view of posterior extremity of pupa is also shown.

„ 5. Moth, position at rest, natural size and magnified (× 17).

„ 6. Moth, wings expanded, natural size and magnified (× 17).

EXPLANATION OF PLATE XLVIII.

Pterophoriscis crystalli.

Fig. 1. Twig of *Vitex* with leaves mined by larva, natural size.

" 2. Leaf of *Vitex*, mined by larva. *a*, the left-hand side of the mine, as seen from above; *b*, the left-hand side, near tip of leaf, where it bends over to form a cocoon for pupation of the larva; *c*, the right-hand portion (natural size).

" 3. Larva, natural size and magnified (× 17).

" 4. Pupa, natural size and magnified (× 17), from side. *a*, dorsal view of posterior extremity of pupa, as also shown

" 5. Moth, position at rest, natural size and magnified (× 17)

" 6. Moth, wings expanded, natural size and magnified (× 17)

LYONETIADÆ.

LEUCOPTERA SPHENOGRAPTA, MEYR. (PLATE XLVII, FIG. 2.)

Leucoptera sphenograpta, Meyr., B. J., XXI, 108-109 (1911)(1); Lefroy, Ind. Ins. Life, p. 539 (1909)(2).

Described from Multan(1) and Pusa(1). We have it from Pusa, Peshawar, Lyallpur and Asansol; doubtless it occurs throughout the Plains of Northern India wherever *Dalbergia sissu* grows.

Larva mining blotches in leaves of *Dalbergia sissu*(1).

Larva mining leaves of *Dalbergia sissu*, at times extremely destructive to young plants. Moths abundant in the cold weather when the leaves of the *sissu* fall [about February at Pusa]; when new leaves are put forth, they lay their eggs, a single small egg on each leaflet(2).

The larva mines a blotch near the edge of a leaf of *Dalbergia sissu*, practically all the new leaves being affected in some years. When fresh, the mine is not very evident but later on it turns brown and is then conspicuous. The moths are common at Pusa throughout the winter and often occur in countless thousands about the end of April, two months after the new *Dalbergia* leaves have been put forth.

PHYLLOCNISTIS CHRYSOPHTHALMA, MEYR.

Phyllocnistis chrysophthalma, Meyr., Exot. Micr., I, 347-348 (1915)(1).

Described from North Kanara(1). Larva mining blotches in leaves of *Cinnamomum zeylanicum*(1).

PHYLLOCNISTIS CIRRHOPHANES, MEYR.

Phyllocnistis cirrhophanes, Meyr., Exot. Micr., I, 348 (1915)(1).

Reared in North Kanara in May from larvæ mining blotches in leaves of *Alseodaphne semecarpifolia* (*Lauraceæ*)(1).

PHYLLOCNISTIS CITRELLA, STT. (PLATES XLVIII, XLIX.)

Phyllocnistis citrella, Stainton, T. E. S. (n. s.), III, 302-303 (1856)(1); Meyr., Ann. S. Afr. Mus., 1909, 360(2); Fletcher, S. Ind. Ins., pp. 465-466, f. 341 (1914)(3); Rutherford, Trop. Agric., XLIII, 49-50 (July 1914)(4); Proc. Second Entl. Meeting, pp. 209, 210, 216 (1917)(5).

Originally described from Calcutta(1), this species occurs throughout India, Ceylon (and Burma ?), and has also been recorded from Cape Colony(2), whither it was doubtless introduced with its foodplant.

The larva feeds on *Citrus* spp., *bael* (*Ægle marmelos*) (Plate XLIX), *Murraya koenigii*, and *bela* (*Jasminum sambac*). In the case of orange, this insect is often a bad pest, especially of young plants, as practically every new leaf may be mined by one or more larvæ. The larvæ also mine under the epidermis of the green stems. The mines are usually found on the upper surface of the leaf and are winding and irregular in shape. The larva works just under the epidermis and feeds on the chlorophyll cells. The larva is about 2·5 mm. long, head and thoracic segments somewhat flattened, abdominal segments cylindrical, segments distinct, stoutest at mesothorax tapering posteriorly almost to a point, uniform pale-yellow or pale-green, naked; head smaller than prothorax, brownish pale green, with prominent antennæ, mandibles and labrum tinged with light brown, ocelli four, black; two lateral black specks on prothorax and mesothorax; legs and five pairs of prolegs very minute and only visible under a lens. The larva moves more by contracting and expanding the body than with the help of the legs and prolegs.

When full-grown, the larva leaves the mine and pupates in a white cocoon, formed on the leaf in any corner afforded by the folding of any part of the leaf (often under a small up-folded portion of the edge of the leaf) or by the side of a raised vein. Before emergence of the moth the pupa is protruded to some extent through one end of the cocoon. (Pusa Insectary Cage-slip 900.)

PHYLLOCNISTIS HABROCHROA, MEYR.

Phyllocnistis habrochroa, Meyr., Exot. Micr., I, 349 (1915)(1).

Described from N. Kanara, where the larva was found mining leaves of "*cheli*"(1).

PHYLLOCNISTIS HELICODES, MEYR. (PLATE L, FIG. 1.)

Phyllocnistis helicodes, Meyr., Exot. Micr., I, 618 (1916)(1).

Reared at Pusa in November from larvæ mining leaves of *Polyalthia longifolia* (Anonaceæ)(1).

Larvæ were collected at Pusa on 10th September 1917, mining leaves of *asoka* (*Polyalthia longifolia*). The mine is made just below the epidermis on the upper surface of the tender leaves. An old mine appears as a broad continuous convoluted brown streak with a whitish space on each side, running up and down the length of the leaf or across its breadth over the midrib. The brown white-edged streak constitutes the mine, the brown streak being the dried liquid excrement of the larva which feeds on either side as it proceeds, the whitish space being the dried mined epidermis of the leaf. When the

Bael (*Ægle marmelos*) leaves mined by larvæ of *Phyllocnistis citrella*.

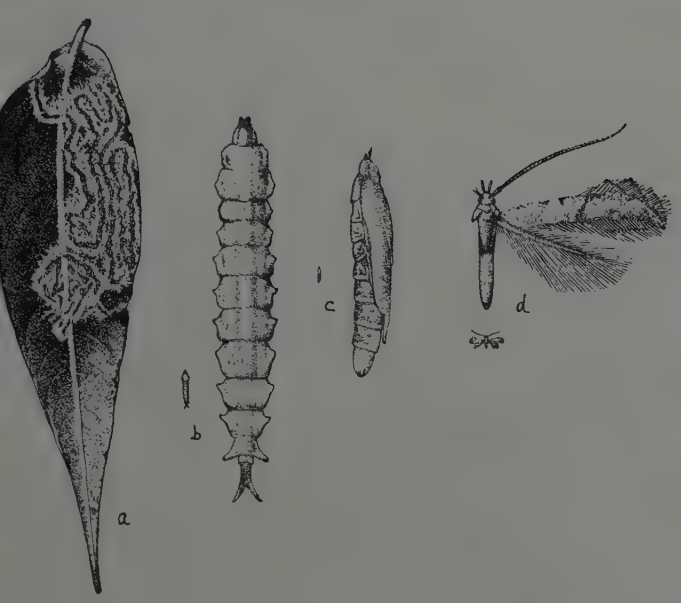


Fig. 1. *Phyllocnistis helicodes*:—*a*, Leaf of *Polyalthia longifolia* mined by larvæ; *b*, larva; *c*, pupa ; *d*, moth, natural size and magnified (x 11).

Fig. 2. *Phyllocnistis toparcha*:—Moth, natural size and magnified.
Below is seen a side-view of the head of moth, more highly magnified.

PLATE L.

larva is full-fed, if it happens to be near the edge of the leaf, it turns over the edge of the leaf and forms a cocoon in which to pupate. If, however, it happens at that time to be somewhere near the middle of the blade, the cocoon is formed there in a sort of depression formed by drawing the contiguous portions of the blade together with silk.

The larva is about 5 mm. long, flattened, segments distinct, uniform pale yellow; head flat, tapering anteriorly, somewhat conical in outline and with two longitudinal furrows; the first eight abdominal segments with a lateral protuberant spine, that on eighth abdominal segment the longest; ninth and tenth abdominal segments tubular, the tenth elongated and bifurcated posteriorly into two long fleshy spines; no legs or prolegs visible (Fig. *b*).

The pupa is about 3 mm. long, cylindrical, tapering slightly posteriorly, light yellow, the dorsal abdominal region blackish; head tapering anteriorly and armed with a narrow black spine bent dorsally; abdominal segments with a dorsal row of black posteriorly-directed short pointed spines; anal extremity rounded and armed on either side with a tubular round-headed process (Fig. *c*).

The moths emerged on 17th September. (Pusa Insectary Cage-slip 1684.)

PHYLLOCNISTIS SELENOPA, MEYR.]

Phyllocnistis selenopa, Meyr., Exot. Micr. I, 348-349 (1915)(1).

Bred at Peradeniya from larvæ mining leaves of *Melia azedarach* (1). This is a very minute species, only expanding three millimetres.

PHYLLOCNISTIS SYNGLYPTA, MEYR.

Phyllocnistis synglypta, Meyr., Exot. Micr., II, 183 (1918)(1).

"Bred at Dharwar, N. Kanara, in February from light green larvæ mining galleries in leaves of a small unidentified shrub, pupa internal in folded edge of leaf (*Maxwell*)"(1).

PHYLLOCNISTIS TOPARCHA, MEYR. (PLATE L, FIG. 2.)

Phyllocnistis toparcha, Meyr., Exot. Micr., II, 182 (1918)(1); Proc. Second Entl. Meeting, p. 235 (1917)(2).

"Bred at Coimbatore in February from larvæ mining leaves of grape-vine (*Vitis vinifera*)"(1). Common on vine at Coimbatore mining the leaves much in the same way as *P. citrella* mines in *Citrus*(2).

BEDELLIA SOMNULENTELLA, Z.

Lyonetia somnulentella, Zeller, Isis 1847, 894-895(1).

Bedellia somnulentella, Wlsm., Fauna Hawaii, I, 723-724, t. 25, f. 28 (1907)(2).

This species is found practically all over the world, having been recorded from Europe, North America, Peru, Hawaii, Australia, New Zealand and the Transvaal. In India it is known from North Coorg and may be expected to be found to be widely distributed. We have specimens from Peshawar.

The larva mines in *Convolvulus* and *Ipomœa* and may be expected to occur on sweet potato.

CROBYLOPHORA DARICELLA, MEYR.

Crobylophora daricella, Meyr., Proc. Linn. Soc. N. S. W., V, 178 (1880)(1), T. E. S., 1894, 29(2), Ann. Transvaal Mus., VI, 41 (1918)(3).

Crobylophora staterias, Meyr., B. J., XVI, 613 (1905)(4).

Crobylophora onychotis, Meyr., Exot. Micr., I, 345-346 (1915)(5).

Originally described from Queensland (1) and since recorded from South Africa(3), Ceylon(4), Burma(2) and India(5), this species is probably originally a native of South Africa and has been distributed artificially with its foodplant, the garden *Plumbago capensis*, in whose leaves the larva forms blister-like patches, several larvæ feeding in one mine. (See Appendix also.)

BUCCULATRIX CRATERACMA, MEYR.

Bucculatrix crateracma, Meyr., Exot. Micr., II, 184 (1918)(1).

"Bred at Pusa in October and November from larvæ mining leaves of *Bombax* [*malabaricum*] (Bombacaceæ). Pupa with five abdominal segments free, in ribbed rosy-whitish cocoon attached to leaf. If the mining habit of larva is really persistent, it is exceptional in the genus "(1).

Larvæ were found at Pusa on 25th September 1916 on leaves of *Bombax malabaricum*. The larva feeds on the green substance of the upper surface of the leaf, leaving the lower tissue untouched, and usually commencing to feed in the middle portion of the leaf. The larva is 6 mm. long and 0·75 mm. broad, tapering towards either extremity, segments distinct, dark green, rather transparent; head smaller than prothorax, transparent, shiny, bilobed, brownish yellow; thoracic segments yellowish-green, transparent; abdominal segments transparent so that the internal organs are visible and the contents of the alimentary canal make the body look dark green; primary hairs black, situated on minute white setæ; legs shiny transparent yellow; five pairs of equally developed prolegs. Pupation takes place in a cocoon about 8 mm. long and 1·5 mm. broad, of which a cross-section is a half-circle, the general

Fig. 1. *Bucculatrix loxoptila*:—Moth, natural size and magnified. Below is seen a side-view of the head of moth, more highly magnified.

Fig. 2. *Pyloetis mimosae.* (From *Indian Museum Notes.*)

appearance boat-shaped, bulging in the middle, the surface ribbed longitudinally. The cocoon is fixed on a leaf, twig or wall of the cage. The pupa wriggles out of the cocoon before emergence of the moth and the empty pupa-case remains protruded from the cocoon. Moths emerged from 4th October to 18th November. (Pusa Insectary Cage-slip 1477.)

BUCCULATRIX EXEDRA, MEYR.

Bucculatrix exedra, Meyr., Exot. Micr., I, 354-355 (1915)(1).

Originally described from the Khasi Hills(1) and North Coorg(1), this species has been bred at Pusa on 5th June 1911 from a pupa enclosed in a slight silken hammock-shaped cocoon, but no cage-slip or record of foodplant is traceable.

We have specimens from Pusa, Shillong and Pollibetta (Coorg).

BUCCULATRIX LOXOPTILA, MEYR. (PLTEE LI, FIG. 1.)

Bucculatrix loxoptila, Meyr., Exot. Micr., I, 209 (July 1914)(1).

Originally described from Zanzibar, where it was " bred from larvæ on cotton (*Gossypium*) "(1). This is presumably the leaf-miner of cotton referred to by Aders (*Zanzibar Protectorate, Economic Zoology Report* for 1913, p. 86) under the name *Gelechia* sp. ; Aders says :—" Throughout the season all experimental cotton was much infested. The leaves in many instances being covered with concentric tunnels. The young larva is white with a brown thoracic shield measuring 1½ mm. ; later it becomes pink, being a conspicuous object beneath the epidermis ; average measurement 3 to 4 mm. Pupation takes place on the dorsal side of leaf in an oval silken case. Pupal stage averages five days."

In India this species is known to occur at Attur, Madras Presidency, where it was reared in June 1907 from larvæ " eating small holes in leaf of Caravonica cotton." (Y. Ramachandra Rao ; C. No. 170.)

BUCCULATRIX MENDAX, MEYR.

Bucculatrix mendax, Meyr., Exot. Micr., II, 185 (1918)(1).

" Bred at Pusa in March from pupa in white ribbed elongate cocoon on leaf of *Dalbergia sissu* (Leguminósæ) "(1).

BUCCULATRIX VERAX, MEYR

Bucculatrix verax, Meyr., Exot. Micr., II, 184 (1918)(1).

" Bred at Pusa in March from larva feeding externally on leaf of *Trewia nudiflora* (Euphorbiaceæ) "(1).

Larvæ were found at Pusa on 12th March 1916 eating holes in leaves of *Trewia nudiflora*, feeding on one side of the epidermal and mesophyll tissue. The larva is about 4 mm. long and 0·75 mm. broad, cylindrical, tapering slightly towards either extremity, segments distinct, pale greyish green ; head much smaller than prothorax, pale yellowish with a slight green tinge ; prothorax with a horny plate ; short scattered pale greenish hairs on segments ; five pairs of prolegs. Pupation takes place in a thin white silken cocoon attached to leaves or the sides of the cage. The pupal period is five or six days in March. (Tahl Ram's Cage-slip 156.)

PETASOBATHRA SIRINA, MEYR.

Petasobathra sirina, Meyr., Exot. Micr., I, 355 (1915)(1) ; Fletcher, Entl. Note 91 (1916)(2).

Described from Gorakhpur and Dalsing Serai in Bihar(1, 2).

Larva on top-shoots of indigo. " The larva is about 4·5 mm. long and about 0·75 mm. across the middle of the body which tapers towards each extremity ; the segments are distinctly separated by deep constrictions ; shape flattened ; head flat, yellow, somewhat elongate, smaller than prothorax ; colour uniform dirty white ; thoracic legs and five pairs of prolegs greyish.

" The larva covers the top-shoots with a profuse web of fine white silk under cover of which it lives and nibbles small portions of the leaf-surface. It is often seen to walk over the webbing. When full-fed it spins a pure-white somewhat elongated cocoon in any suitable situation which provides some corner, *e.g.*, along the midrib on the upper surface of a leaf or in a rolled or folded leaflet. The moth emerges after about a week and rests with the anterior half of the body well raised and the antennæ held extended at right angles to the body "(2).

OPOGONA CHALINOTA, MEYR.

Opogona chalinota, Meyr., Rec. Ind. Mus., V, 230 (1910)(1) ; Lefroy, Ind. Ins. Life, p. 540 (1909)(2).

Described from Colombo, Puri in Orissa, and Pusa(1).

Bred at Pusa in March from larvæ feeding in dry stems of *Polypodium quercifolium*(1). Larvæ found in January, reducing the stems to a mass of frass and dust amongst which the full-grown larvæ pupate in white silken cocoons, covered with frass and dust. Moths emerged from 1st January to 11th March(2).

Larvæ were found at Pusa on 23rd January 1907 in a dry *gurur* (*Polypodium quercifolium*) stem, almost the whole interior of the stem having been reduced to dust in which the larvæ lived and pupated. The larva was described as about 10 mm. long, slender, cylindrical, dirty white with small scattered hairs; head red-brown, bilobed; prothoracic shield brownish, skin rather transparent, the blackish internal organs visible through; five pairs of prolegs. Pupation in a white silken cocoon covered with dust and excrement. Pupa rather over 4 mm. long, brown, posterior portion of leg-cases separate and extending to anal extremity. The pupa wriggles out of the cocoon to some extent on emergence of the moth. (Pusa Insectary Cage-slip 501.)

This species has also been bred at Coimbatore from a larva found in bark of *Papaya carica*.

OPOGONA FLAVOFASCIATA, STT.

Lozostoma flavofasciata, Stainton, T. E. S. (n. s.) V, 124 (1859)(1).
Opogona flavofasciata, Petch, Ann. R. B. G. Peradeniya, III, 229 (1906)(2);
Meyr., Rec. Ind. Mus., V, 230 (1910)(3).

Originally described from Calcutta(1,3), this species has been recorded from Peradeniya(2) and is found abundantly at Coimbatore. We have it from the Anamalais (3,600 feet), Coimbatore, Rangoon and Mandalay.

Larva in fungus-combs of termites' nests, which they reduce to a mass of excrementitious matter in a few days when cultures of combs are attempted, the cultures being resolved into a mass of black pellets. Though the moths are apparently confined to this habitat, it is remarkable that no trace of the larvæ or their work has been observed in the termites' nest under natural conditions(2).

OPOGONA PRÆCINCTA, MEYR.

Opogona præcincta, Meyr., Exot. Micr., I, 620 (1916)(1).

"Found at Coimbatore under a log associated with the termite *Odontotermes feæ* (*Fletcher*)"(1). A single specimen was found on 29th July 1912. It is probable that the larva feeds in the nests of *O. feæ*.

OPOGONA LACHANITIS, MEYR.

Opogona lachanitis, Meyr., B. J., XVII, 416-417 (1906)(1).
Opogona chalanitis, Lefroy, Ind. Ins. Life, p. 540 (1909)(2).

Described from Puttalam and Peradeniya, in Ceylon(1,2).

Larva in fungus-beds of termites(1, 2).

Also occurs in India at Hoshangabad, where I found the moths freshly attracted to fungus-combs newly dug out of termitaria. We have it also from Chitorgarh (Rajputana), Nagpur, Bangalore and Coimbatore.

OPOGONA FUMICEPS, F. & R.

Opogona fumiceps, Felder, Lep. Novara, t. 139, f. 8 (1875)(1); Moore, Lep. Ceylon, III, 526 (1887)(2); van Deventer, Tijds. voor Ent., XLVI, 83, t. 10, ff. 1a, 1b (1904)(3); Meyr., B. J., XVII, 986 (1907)(4).

Recorded from Ceylon(1, 2, 4) and Java(3, 4).

Larva on *Cocos nucifera*(3). The larva and pupa are described and figured by van Deventer(3).

[The species described by Swezey (*Hawaii. Sugar Planters' Assocn., Entl. Bull.* 6, p. 19; 1909) as *O. fumiceps*, the larva feeding in sugarcane in New Guinea, is probably *O. autophyta*, Meyr., which is not Indian.]

ERECHTHIAS ZEBRINA, BUTL.

Argyresthia zebrina, Butl., A. M. N. H. (5) VII, 403 (1881)(1).

Ereunetis lanceolana, Wlsm., P. Z. S., 1897, 158(2).

Ereunetis xenica, Meyr., Tr. Linn. Soc. (2) XIV, 301 (1911)(3), Rec. Ind. Mus., V, 230(4).

Decadarchis xenica, Meyr., Exot. Micr., I, 367 (1915)(5).

Erechtias zebrina, Meyr., T. E. S., 1915, 253(6).

Ereunetis zebrina, Wlsm., Fauna Hawaii, I, 715-716, t. 25, f. 16 (1907)(7).

This species has been recorded from the West Indies(2, 6), Brazil(2), British Guiana(6), Hawaii(1, 6, 7), Borneo(3, 6) and the Seychelles(3, 6). Within our limits it appears to be plentiful in Ceylon, where it has been recorded from Puttalam, Kandy and Maskeliya(3), and is known in India from Calcutta(5), the Khasi Hills(3) and North Coorg(3). We have it from Shillong.

The larva "is doubtless a refuse-feeder and artificially spread"(6).

PYLŒTIS MIMOSÆ, STT. (PLATE LI, FIG. 2.)

Laverna ? *mimosæ*, Stainton, T. E. S. (n. s.), V, 126 (1859)(1); Lefroy, Ind. Ins. Life, p. 536 (1909)(2).

Ereunetis ? *seminivora*, Wlsm., Ind. Mus. Notes, IV, 107, t. 7, f. 2 (1898)(3); Lefroy, Ind. Ins. Life, p. 540 (1909)(4).

Pylœtis ophionota, Meyr., B. J., XVII, 752 (1907)(5).

Pylœtis mimosæ, Meyr., Rec. Ind. Mus., V, 231 (1910)(6).

Originally described from Calcutta(1); also recorded from Hooghly(2) and from Puttalam and Matale in Ceylon(5). I have also seen it from

Coimbatore and have taken it in March at Rajshahi, Bengal, so that it is doubtless widely distributed in the Plains of India and Ceylon.

Larva in seeds of *Acacia arabica*(1), in pods of *Cassia fistula*(3), in pods of *Cassia corymbosa* at Coimbatore.

DECADARCHIS MINUSCULA, WLSM.

Ereunetis minuscula, Wlsm., P. Z. S., 1897, 155-156(1), Fauna Hawaii Microlep., p. 716, t. 15, f. 17 (1907)(2).

Decadarchis minuscula, Meyr., Exot. Micr., I, 367 (1915)(3), Ann. Transvaal Mus., VI, 43 (1918)(4).

A very widely-distributed species recorded from the West Indies(1), South Africa(4), Hawaii(2) and Ceylon(3).

The larva feeds in dry vegetable refuse(4).

DECADARCHIS DISSIMULANS, MEYR.

Decadarchis dissimulans, Meyr., Exot. Micr., I, 368 (1915)(1).

Ereunetis melanastra, Meyr., B. J., XVI, 617 (1905) [*nec* Meyr., T. E. S., 1886, 291 = *simulans*, Butl.](2).

Described from Ceylon (Udagama, Peradeniya, Kegalle, and Kalutara)(1). We have it from Udagama.

Larva feeding on decaying bark of dead *Hevea brasiliensis* (Para rubber)(2), in dead bark and wood(1).

TISCHERIA PTARMICA, MEYR.

Tischeria ptarmica, Meyr., Rec. Ind. Mus., II, 399 (1908)(1); Lefroy, Ind. Ins. Life, p. 540 (1909)(2); Imms and Chatterjee, Ind. Forest Mem. (Zool.), III, 32 (1915)(3).

Described from Puri, in Orissa, where the larvæ were found "mining small elongate blotches in leaves of *Zizyphus jujuba* in January. The species occurred in great profusion, leaves an inch in diameter containing twenty or more larvæ and the moths are described as 'swarming like a cloud of midges round the tree.' The mine, larval habits, and pupa are similar to those of European species "(1).

Stainton (*Nat. Hist. Tin.*, III, 228) says of the larval habits of the European species :—"These mine the interior of leaves, and as far as is yet known, always the upper side, making large irregularly formed blotches of whitish or brownish colour; the interior of the mine is always beautifully carpeted with white silk, but the peculiarity of these mines is, that they are kept perfectly clean, not a single grain of excrement being ever to be found within" .....

" The larva never quits the mine, and changes therein to a pupa, not spinning any cocoon."

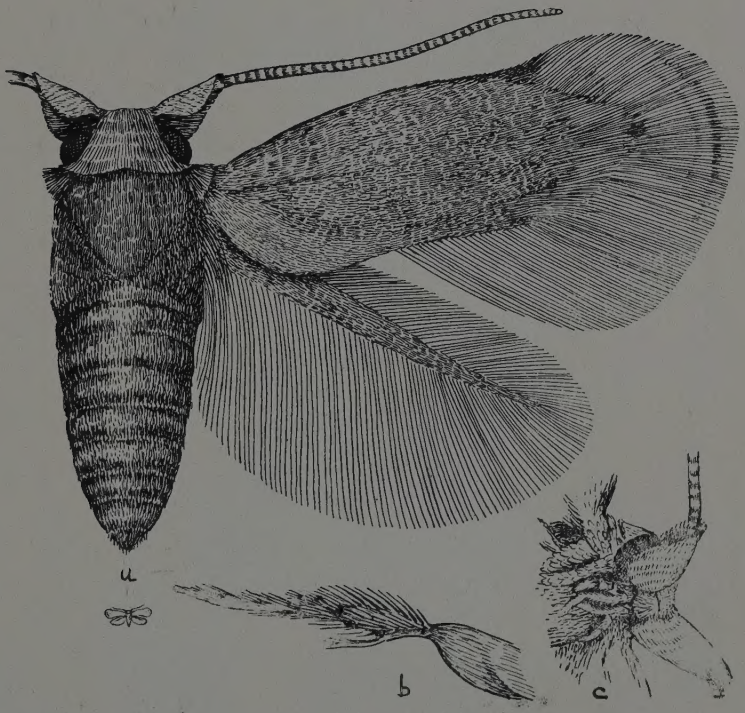
" Stebbing [*A Note on the Lac Insect* (*Ind. For. Mem.*) (*Zool.*), I, 21 (1910)] mentions that Dr. N. Annandale has bred out specimens of this small moth from lac obtained from Orissa "[3]. It is more probable that the moths emerged from leaves on *ber* branches on which the lac was collected.

OPOSTEGA MYXODES, MEYR. (PLATE LII.)

Opostega myxodes, Meyr., Exot. Micr., I, 619 (1916)[1].

Bred at Pusa in September and October 1915 from larvæ mining in leaves of *Cordia myxa* (Boraginaceæ)[1].

Larvæ were found at Pusa on 24th September 1915 mining leaves of *Cordia myxa*. The larva pupates outside of the mine on any convenient surface in a dull-white cocoon of uniform texture, pupation occurring in an inner cocoon spun inside the outer one. The moths emerged on 1st and 2nd October.



Opostega myxodes:—*a*, Moth, natural size and magnified (×27); *b*, hind leg; *c*, head of moth, seen from below, more highly magnified.